INDUSTRIAS TECHNOFLEX SA

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Vibrador Electrónico de Alta Frecuencia "SILVA"

*High Frequency Electronic Vibrator **"SILVA"***

*Vibrateur Électronique de Haute Fréquence **"SILVA"***

*Vibrador Electrónico de Alta Frequência**"SILVA"***

Manual de Instrucciones / Lista de Recambios

Instruction Manual / Spare Parts

Manuel d'Instructions / Liste de Pièces de Rechange

Manual de Instruções / Lista de Reposições

MAQUINARIA PARA LA CONSTRUCCIÓN Y OBRAS PÚBLICAS

BUILDING AND PUBLIC WORKS MACHINERY

MACHINERIE POUR LA CONSTRUCTION ET LES TRAVAUX PUBLICS

MAQUINARIA PARA A CONSTRUÇÃO E OBRAS PÚBLICAS

Este manual está compuesto por los siguientes capitulos:
This manual is divided into the sections listed below:
Ce manuel contient les sections suivantes:
Este manual está composto dos seguintes capítulos:

1A- *Utilización (Español)*

1B- *Utilización (English)*

1C- *Utilización (Français)*

1D- Utilização (*Portugués)*

2.- *Recambios Caja de Mandos (Español, Inglés, Francés, Portugués)*

3.- *Recambios Vibrador (Español, Inglés, Francés, Protugués)*

4.- *Recambios Agujas (Español, Inglés, Francés, Protugués)*

*Este manual contiene información y procedimientos que son necesarios para utilizar y mantener este vibrador modelo **SILVA-**. Para su propia seguridad y protección, por favor lea cuidadosamente, entienda y observe todas las instrucciones de seguridad descritas en este manual. LOS DATOS CONTENIDOS EN ESTE MANUAL SON CORRECTOS EN EL MOMENTO DE SU EDICIÓN. NO OBSTANTE EL FABRICANTE SE RESERVA EL DERECHO DE MODIFICAR LAS CARACTERÍSTICAS, SIN PREVIO AVISO A FAVOR DEL COMPROMISO DE MEJORA CONTINUA.*

*This manual provides information and procedures to safely operate and maintain this vibrator **SILVA-** model. For your own safety and protection from injury, carefully read, understand and observe the safety instructions described in this manual. THE INFORMATION CONTAINED IN THIS MANUAL ARE CORRECT FROM THE MOMENT OF EDITING. HOWEVER THE MANUFACTURER RESERVES THE RIGHT TO MODIFY THE CHARACTERISTICS, WITHOUT PRIOR NOTICE IN CONSIDERATION OF CONTRACT COMMITMENT OF CONTINUOUS IMPROVEMENT.*

*Ce manuel contient les informations et les procédés qui sont nécessaires à l'utilisation et à l'entretien du modèle de vibreur **SILVA-**. Pour votre propre sécurité et protection, lisez attentivement, observez et appliquez toutes les instructions de sécurité décrites dans ce manuel. LES DONNÉES CONTENUES DANS CE MANUEL SONT CORRECTES AU MOMENT DE L'ÉDITION. CEPENDANT LE FABRICANT SE RÉSERVE LE DROIT DE MODIFIER LES CARACTERISTIQUES, SANS AVIS PRÉALABLE EN VUE DE L'AMÉLIORATION CONTINUE.*

*Este manual contém informação e procedimentos que são necessários para utilizar e manter este vibrador, modelo **SILVA-**. Para a sua própria seguridade e protecção, faça o favor de ler com cuidado, entender e observar todas as instruções de seguridade descritas neste manual. OS DATOS QUE ESTE MANUAL CONTÉM SÃO CORRECTOS NO MOMENTO DA SUA EDIÇÃO. MAS O FABRICANTE RESERVA-SE O DIREITO DE MODIFICAR AS CARACTERÍSTICAS SEM ANTES AVISAR, A FAVOR DO COMPROMISSO DA MELHORA CONTÍNUA.*

Mantenga este manual ó una copia de él con la máquina. Si se pierde ó Ud. desea un ejemplar adicional haga el favor de comunicarse con INDUSTRIAS TECHNOFLEX S.A. Esta máquina fue fabricada con la seguridad del usuario en mente; sin embargo, situaciones peligrosas pueden presentarse si la máquina es utilizada inapropiadamente. Siga las instrucciones de utilización cuidadosamente. Si Ud. tiene preguntas ó dudas acerca de la utilización o mantenimiento de este equipo, haga el favor de comunicarse con INDUSTRIAS TECHNOFLEX S.A.

Keep this manual or a copy of it with the machine. If you lose this manual or need an additional copy, please contact INDUSTRIAS TECHNOFLEX S.A. This machine is built with user safety in mind, however, it can present hazards if improperly operated and serviced. Follow operating instructions carefully! If you have questions about operating or servicing this equipment, please contact INDUSTRIAS TECHNOFLEX S.A.

Gardez ce manuel ou une copie avec la machine. En cas de perte ou si vous désirez un exemplaire supplémentaire veuillez vous adresser à INDUSTRIAS TECHNOFLEX S.A. Cette machine a été fabriquée en pensant à la sécurité de son utilisateur; toutefois, des situations dangereuses peuvent se présenter si la machine n'est pas utilisée convenablement. Suivez les instructions attentivement. Si vous avez des questions ou des doutes, au sujet de l'utilisation ou l'entretien de cet équipement, adressez-vous à INDUSTRIAS TECHNOFLEX S.A.

Mantenha este manual ou uma cópia dele com a máquina. Se o perder ou se o senhor desejar um exemplar adicional faça o favor de se comunicar com INDÚSTRIAS TECHNOFLEX S.A. Esta máquina foi fabricada pensando na seguridade do usuário; mas se a máquina for utilizada impropriamente poderiam se apresentar em situações perigosas. Siga as instruções de utilização cuidadosamente. Se o senhor tiver perguntas ou dúvidas sobre a utilização ou mantimento de este equipe, faça o favor de se comunicar com INDÚSTRIAS TECHNOFLEX S.A.

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1.1 Safety Notes

This manual contains CAUTIONS and WARNINGS which must be followed to prevent the possibility of improper service, damaged to the equipment, or personal injury. Read and follow all the CAUTIONS and WARNINGS included in this instructions manual.

WARNING: Warnings warn of conditions or practices which could lead to personal injury.

1.2 Warning and Safety Instructions

WARNING

Read All Instructions!

When using electric tools, basic safety precautions should always be followed, to reduce the risk of fire, electric shock, and personal injury.

Guard against electric shock!

1. *Never operate vibrator with damaged or worn electrical cords! When using and extension cord be sure to use one heavy enough to carry the current load.*
2. *Prevent body contact with grounded surfaces, such as pipes, metal railings, radiators and metal ductwork.*
3. *When vibrator is used outdoors, use only extension cords intended for and marked for outdoor use.*
4. *Always keep power cord away from heat, oil and sharp edges which can damage it.*
5. *Make certain vibrator is in good working order and properly **grounded** before starting, as well as the **connection plug** this will bew connected.*

Save these instructions!

READ ALL INSTRUCTIONS

WARNING

Familiarity and proper training are required for the safe operation of this equipment! Equipment operated or serviced improperly or by untrained personnel can be dangerous! Read all operating instructions and the safety notes below. Familiarize yourself with the proper use of this equipment before operating it.

1.Keep your work area clean and free of clutter.

2.Keep your work area well lit.

3.DO NOT allow children or people other than the operator to handle power cables, extension cords or the equipment.

4.DO NOT allow non-essential personnel or visitors in the work area.

5.NEVER carry vibrator by cord or pull on it to disconnect it from receptacle. Keep cord away from heat, oil and sharp edges.

6.Stay alert! Watch what you are doing. Use common sense. NEVER operate the vibrator motor when you are tired or while under the influence of drugs, alcohol, or medication.

7.Keep hands, feet, hair and loose clothing away from moving parts. They can be caught in moving parts.

8.DO NOT operate equipment if switch does not operate properly.

9.DO NOT overreach! Keep proper footing and balance at all times. Make sure any supporting structures are strong enough and stable enough to support your weight and the weight of any equipment on it.

10.Wear protective clothing when operating equipment. Goggles or safety glasses will protect against eye damage caused by flying debris.

11.DO NOT force tool. Use the correct tool for which it is designed.

12.NEVER allow untrained personnel to operate or service the equipment.

13.Maintain tools with care. Keep vibrator unit clean for better and safer performance. Inspect motor cord periodically and if damaged, have it repaired by an authorized service facility.

14.NEVER use the vibrator with a defective switch. If the switch does not turn the motor "ON" or "OFF", have it repaired by an authorized service facility before using the motor.

15.Replace worn or damaged parts with replacement parts designed and recomended for use by ***INDUSTRIAS TECHNOFLEX S.A.***

16.Any servicing, other than that covered in this instruction manual, should be performed by an authorized ***INDUSTRIAS TECHNOFLEX S.A*** *Service Representative.*

17.In all the countries the normative ones are not same, please if in their country the demand level is not contemplated in this manual, we request them they indicate it to us.

Save these instructions!

1.3 Technical Data

Model	Ø Needle mm (in)	Length Nedle mm (in)	Lgt. Cover Lgt. Cable ft.	Vibrations Per minute	Centrifugal Force N.	Width	Weight lbs.	Nominal Current A.
MEF-38	38 (1,5)	360 (14)	4 + 5	13.000	1.500	1,3	37,5	2,5
MEF-50	50 (2)	333 (13)	4 + 5	13.000	2.700	1,4	40	3,5

Supply Voltage: 200/240 V., 50/60 Hz.
110/120 V., 50/60 Hz.

Working Tension: 200/240 V., III, 200 Hz.
110/120 V., III, 200 Hz.

*Operation temperature: of -20℃ at +55℃, correspon ding to the **class 4K4H**.*

*Note: Both models incorporate **thermal protection***

1.4 General Characteristics

The Vibrator will be used by personnel trained for this job, it will only be used in specific jobs for which it has been technically developed, after having read the instructions contained in this manual and which must be fellowed correctly.

The manufacturer or authorised distributor must be consulted about any doubts.

*The manufacturer **Industrias Technoflex S.A.**, will not accept any responsibility derived from incorrect installation, manipulation, or misuse of the vibrator.*

1.5 Safety at work

*The HIGH FREQUENCY Electronic Vibrators **SILVA-** model fulfils the E.C. regulation of safety at work, low voltage and vibration in portable machines or hand driven, as well as ISO 6081 regulation, regarding noise at the place of work. However the use of hearing protection and rubber boots during the vibrating time.*

The manufacturer will not accept responsibilities for accidents if they derive from structure modification.

***The rules demand a perfect connection to a general GROUND.** **NOT** having this connection or having it wrongly installed excuses the manufacturer of any responsibility.*

In the case of having to open the control box which protects the electronics the operator should wait 15 minutes after disconnecting the electricity supply.

Should the control box need to be opened, you should wait 15 minutes after having disconnected the electrical supply.

For safety to avoid switching on accidentally, do not to forget disconnect the Vibrator from the electricity when substituting or repairing parts.

In addition to our recommendations the safety directives in force in each country must be respected.

*The electronic box must **NOT** in any circumstances be manipulated with the Vibrator plugged in the electricity. **THERE IS A DANGER OF ELECTRIC SHOCK.***

IMPORTANT NOTICE: If it breaks the rubber protection of the switch Pos. 5 Fig. 1, it should BE REPLACED IMMEDIATELY, there is danger of introduction of water and RISK OF ELECTRIC SHOCK.

1.6 Conditions of Use

*The Vibrators **MEF- model,** for concrete is designed to give maximum satisfaction to the user, as long as the instructions of use and maintenance contained in this manual. The HIGH FREQUENCY ELECTRONIC VIBRATOR, is designed to vibrate concrete and be used under the hardest conditions, both environmental as well as use.*

The vibrating needle to make up a high quality motor with power to spare and perfectly encapsulated in epoxi resin, which gives it a great resistance to the efects of vibration.

*All the models **SILVA-** series are equiped with thermal protection against overheating. When the system detects an increase in temperature above the predetermined levels the vibrating needle automatically stops working. The needle is automatically reset once the conditions which caused the sttopage have disappeared.*

*The thermal system protects the needle, a stoppage of the needle is **NOT** synonymous with a breakdown, only when this happens when the vibrating needle is introduced in the concrete is possible that a breakdown exists.*

*If the stoppage occurs with the needle vibrating out of the concrete it is **NOT** a breakdown is simply the normal protection.*

*The needle of the **HIGH FREQUENCY** Electronic Vibrator must be submerged **at least two thirds of its length** in the mass of concrete to facilitate its refrigeration.*

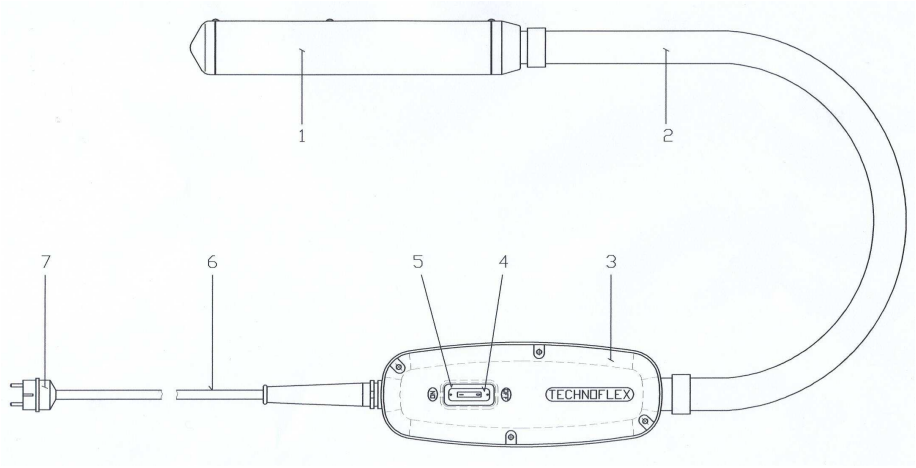
Contact should be avoided between vibrating needles and solid objects with sharp edges for long period of time.

*In the event that the stoppage occurs with the needle is submerged in the mix and vibrating the concrete, the equipment should be switched off immediatelly, followed by its examination and repair it necessary. In **NO** case should vibrating be continued as this would case the breakdown of the motor of the needle.*

WARNING

The vibrators belonging to the SILVA series incorporate a safety system (Patented) that in the event of a power cut due to external causes stops the vibrator and makes the accidental starting of the machine impossible when the power supply is again restored. Once the power supply is restored, the machine starts with “ON” position switch.

1.7 Instructions of Use



1.- Vibrating Needle
2.- Reinforced Rubber Hose Tube
3.- Control Box
4.- Switch
5.- Rubber Protection
6.- Electric Cable with Mains Plug Connection

Fig.: 1

- Starting

*The **SILVA-** type **HIGH FREQUENCY** ELECTRONIC VIBRATORS must be connected to single-phasic networks of 200/240 V., or 110/120 V., and 50/60 Hz. according to country, with **GROUND.***

The 200/240 V., or 110/120 V., power supply should come from a transformer, (380/220 V. if the main supply is 3x380 V. or 3x220 V.respectively). If this tension is produced with one phase and the neutral, its failure could cause the destruction of the electronic equipment. Before starting you will proceed to the total revision of the Vibrator, checking with special attention the state of the plug, electric cable, control box, the switch and the operation of this. Against any laceration, it plows or damage will be proceeded to repair, for avoiding later mishaps.

*In **NO** case should repairs or changing of parts be done with the Vibrator plugged into the mains supply.*

The state of the connector should be checked periodically, measuring the continuity between the vibrating needle and the pin of the plug.

*Once everything is checked, make sure the switch is in the position "OFF", connect the plug and after that switch to "ON". In **NO** case should the plug be connected to the mains with the needle connected, that is with the switch in the position "ON", because when started in charged position the electronic equipment may entry in emergency. In this case the switch should be put in the "OFF" position the vibrator should be disconnected from the mains, wait 2 minuts, (the time it takes the electronic equipment to erase the emergency and reconnect).*

*With temperatures below 3℃ the vibrating needle ma y have difficulty starting after a long period of disase. This is due to the solidification of the grease on the bearings, the vibrating needle should be heated and kept working out of the mix unit it reaches its normal vibration level. **(With a maximum time of 2 minutes)**.*

***ATTENTION** Check exhaustively the correct warning of the **GROUND** conductor.*

- ***Operation***

Be specially careful not to let the electric cable from loops or knots when working, as this will certainly cause the internal breakage of the cable. Protect the electric cable from heat, acids, objects with sharp edges, heavy machinery and another objects which might cause its breakage.

*In **NO** case should the Vibrator be dragged or moved by pulling the electric cable.*

*The concrete should vibrate in horizontal layers and the needle should **NEVER** be used to move the concrete saidways. The Vibrator must **NOT** be stopped while introduced in the concrete, to stop it must first be extracted.*

The electronics are designed to work between -20℃ and +55℃, exceeded these limits may cause defective working.

Untrained persons should NOT be let use the Vibrator or manipulate its electric parts.

TO CLEAN THE CONCRETE WITH A BRUSH, NEVER HITTING, IT WILL PRODUCE THE BREAK OF THE ELECTRONIC EQUIPMENT. IT IS RECOMMENDED, BEFORE BEGINNING THE WORK, TO PAINT THE ELECTRONIC BOX WITH SOME PRODUCT THAT AVOIDS THAT THE CONCRETE ADHERES TO HER.

ATTENTION: When the Vibrator has to work with an autonomus power generator its power should be 5 times superior to that of the Vibrator, in order to avoid oscillations in the output.

1.8 Maintenance Instructions

WARNING

Before performing any maintenance on this unit,
ALWAYS MAKE CERTAIN that the switch is in the "OFF" position
and the power cord is disconnected from the power source.

That must be carried out every 100 hours of functioning or depending on the conditions of use and at the maximum every six months, to a complete overhauling of the vibrator. The following must be checked the state of the mains plug connection, electric cables, switch, needle bearings, wear of the exterior tube and the point.

- ***Needle:** The overhauling will be carried out by dismantling all the components, checking the their state and substituting the part which is deteriorated, clean and grease the bearings.*
- ***The greasing of the bearings** must be done with special high speed bearing grease, **Staburags NBU-4** or **Isoflex NBU-15** from the firm KLÜBER LUBRICATION or any other equivalent one.*
- *When the needles are manipuled or dismantled the close joints must be changed and the screws sealed with LOCKTITE 243. (Wait for one hour before using).*

The parts which are seen to have excessive wearing, the loose bearings, heat up or make too much noise, must be substituted and always remember ***ORIGINAL SPARE PARTS MUST BE USED.***

For safety reasons and so as to avoid accidental starting, DO NOT forget to disconnect the Vibrator from the network, when some kind of operation or part substitution is made.

1.9 Instructions for Ordering Spare Parts

Spare parts are on sale thrugh the official services and in the brand distributors in your locality.

When you order spares do not forget to indicate:

- *Type of machine*
- *Units ordered, code and description of parts requested , and whenever possible, the series number of the machines*
- *When equipment or spare parts have to be returned to the factory its necessary to contact with* ***Industrias Technoflex S.A.*** *for prior agreement, "AN ABSOLUTE NECESSITY FOR THEIR RECEPTION".*

1.10 Transport and Storage

- ***Conditions for transport and storage:***

The packaging of the ***SILVA-*** *Vibrator allows its easy transport without taking any special precaution.*

Its storage the ***SILVA-*** *Vibrator if it is for a long period of time, its storage will be in a safe dry place and it is convenient to do it in a way that the flexible transmission is in an extended position, with the aim that permanenet deformations in the neoprene covering.*

Before storage and after use the transmissions must be perfectly cleaned outside, taking all the concrete leftovers off, this operation can be carried out by hydro jet avoiding the electric parts.

1.11 Guarantee

A) ***Period of Guarantee***

Industrias Technoflex S.A.*, guarantees the products and components they manufacture, for a period of 6 months.*

B) ***Coverage of Guarantee***

The guarantee covers all the defects from manufacturing of the components of the product, as well as their replacement or substitution, on behalf of the Technical After Sales Service.

C) ***Cancellation of Guarantee***

The guarantee does not cover the misuse or inadequate manipulation, on behalf of the use of the vibrator, nor the incorrect connection, knocks, maltreatment or repairing by unauthorised personnel.

The SILVA- type HIGH FREQUENCY ELECTRONIC VIBRATORS can only be conected to single-phase current of 200/240V., or 110/120 V., and 50/60Hz. according to country.

During the period of guarantee the breakdowns must be repaired by personnel from ***Industrias Technoflex S.A.****, authorised to do so, if this is not so the right given by the guarantee will be lost.*

The equipment which has been dismantled or manipulated previously by personnel unauthorised by ***Industrias Technoflex S.A.*** *will not be in guarantee.*

In all the cases of application for guarantee, ***prior notice*** *must send the equipment to* ***Industrias Technoflex S.A.*** *or where they indicate.*

IMPORTANT NOTICE:

Industrias Technoflex S.A.*, are not responsible for damage caused to the product or persons due to their misuse or bad manipulation.*

1.12 Troubleshooting

- ***Problems in the Needle:***

SYMPTOM	*PROBABLE CAUSE*	*COUNTERMEASURE*
Needle motor doesn't work.	*-Loose electric connections.* *-Faulty switch.* *-Faulty power supply.* *-Lack of tension.*	*-Checking and replace if it necessary.* *-Replace.* *-Rearm.* *-Checking the electronic equipment.*
The needle makes more noise than normally.	*-Faulty bearing.*	*-Replace them with original spare.*
The needle stops when it is vibrating the concrete.	*-The thermal protection switch off.*	*-Checking electrical parts and bearings.*
Doesn't start with below temperatures.	*-The grease is solidified.*	*-Starting the vibrating needles to work without load enough time until it works normally.*
The needle revolves with a slow speed and warm it.	*-Blocked bearings.* *-The motor rotor frictioned.*	*-Replace bearings with original spare.* *-Sending to our factory or Official Agent.*
General differential fails.	*-Current escapes to ground.*	*-Check state electric cables.* *-Check, if motor burnt.*

- ***Problems in the Electronic Equipment***

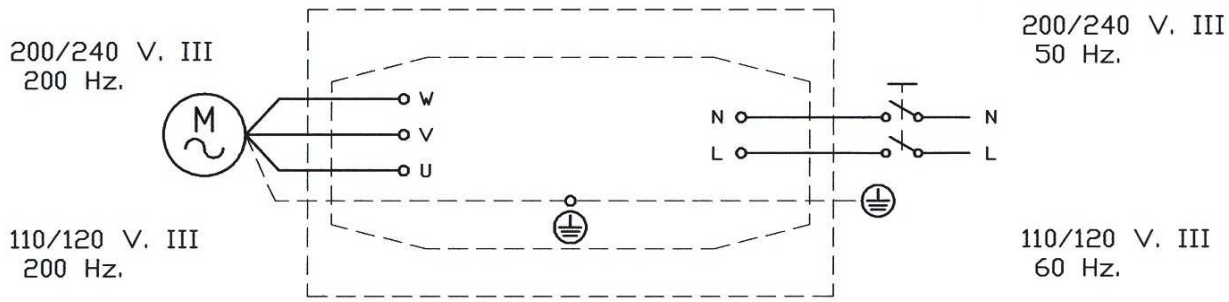
The electronic equipment disposes of three LEDS of which indicates circuit estate or any malfunction. When functioning normally, the ***POWER SUPPLY*** *green LED should be on permanently,* ***DON'T MANIPULATE DE ELECTRONIC PLATE*** *with the green LED on.*
The yellow Led indicate the machine is in stop or wait instructions, the red LED indicates malfunction, ***OVERCURRENT or OVERLOAD,*** *the type of failures it indicates the number of sparkles in the red LED, next we show the diferents failures of function :*

red LED

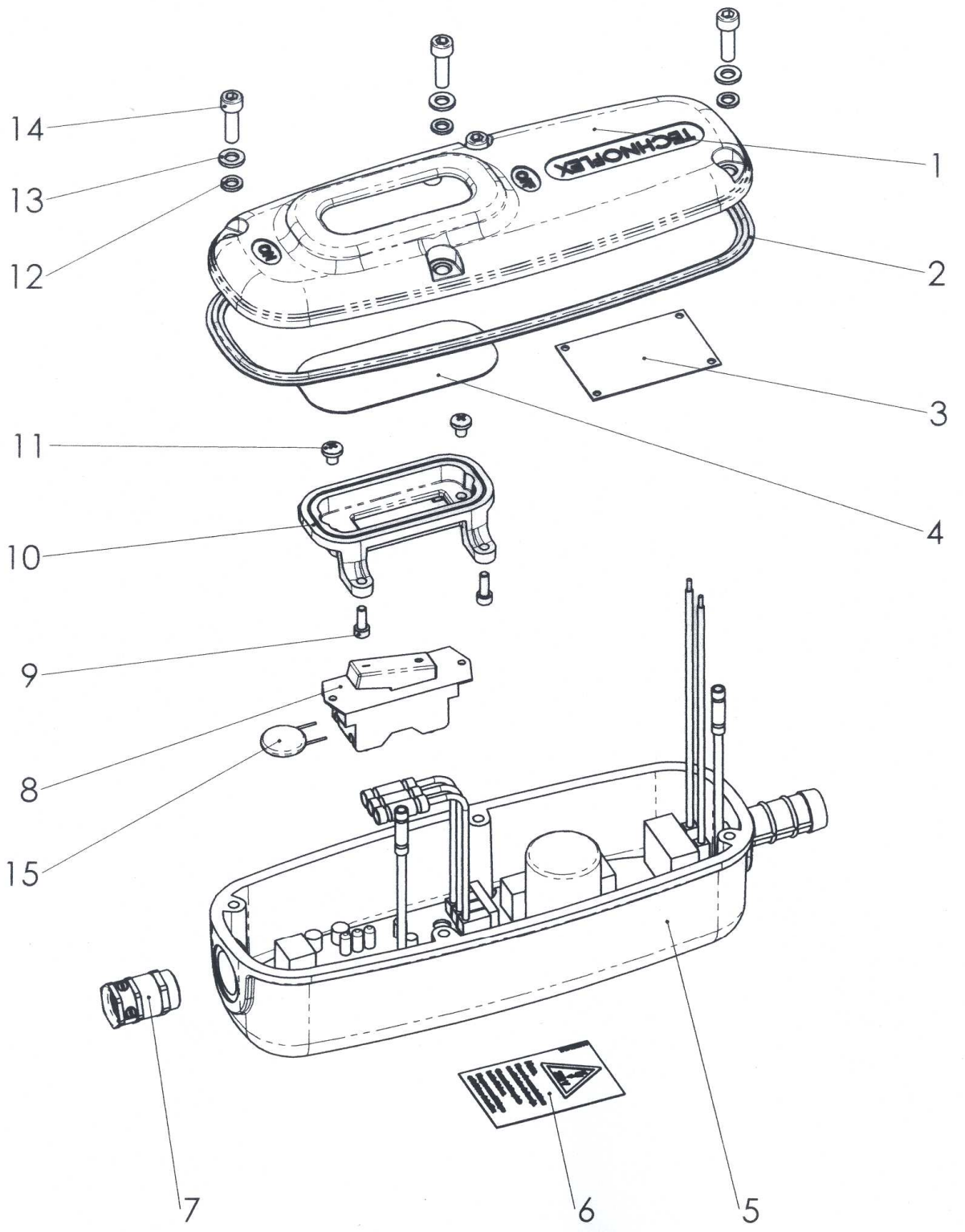
Nº Sparkles	***Explanation***
1	*Less Input tension*
2	*Circuit Overheat checked*
3	*Input tension so high*
4	*Phase failure in the motor*
5	*The circuit has checked lost current to ground*
6	***Overload*** *in the motor*
Fixed	***Overcurrent*** *(Phase short-circuit)*

SYMPTOM	***PROBABLE CAUSE***	***COUNTERMEASURE***
Motor doesn't work.	*-Lack of outdoor tension.*	*-Check outdoor tension.*
Overcurrent *LED on.*	*-Motor short circuit.*	*-Check wires or replace motor.*
Overload *LED on.*	*-Blocked bearings or motor working in two phases.*	*-Check bearings or check electrical conductors.*
Malfunction motor LED on.	*Phase malfunction in the motor*	*-Check electric wires or replace motor.*
Detection lost current to ground LED on.	*Current derived to ground*	*- Check electric wires at motor to circuit*

1.14 Wiring Schematic



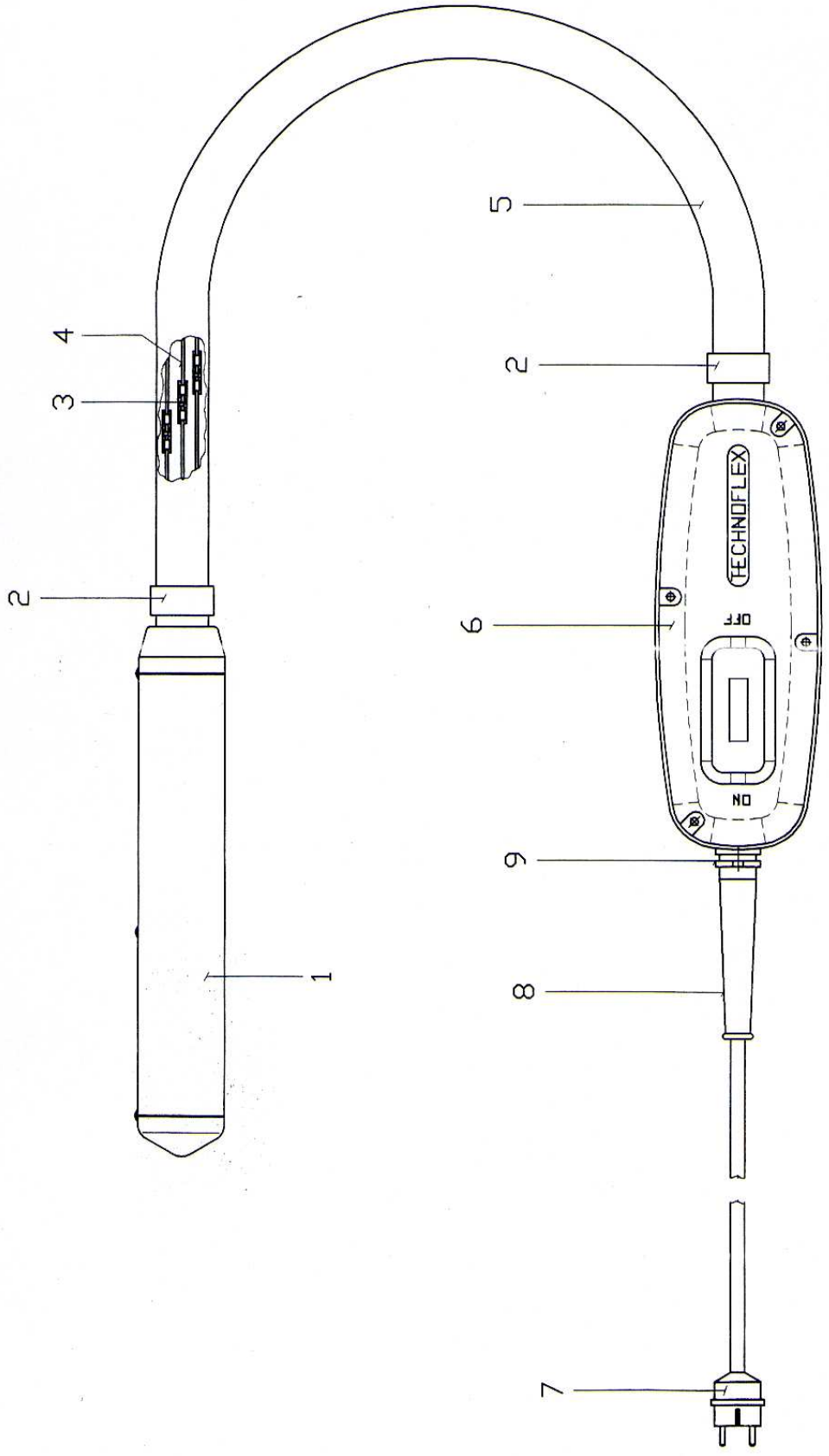
2.1 *Caja de Mandos / Control Box / Boîte à Commande / Caixa de Encomendas*



Lista de Recambios / Spare Parts / Liste de Pièces de Rechange / Lista de Reposições

Código 115V.	Código 220V.	Pos.	Cant.	Descripción	Description	Description	Descrição
173635R012	173635R012	1	1	Tapa	Cover	Couvercle	Tampa
4042119203	4042119203	2	1	Junta	Seal	Joint	Junta
173637R014	173637R014	3	1	Placa características	Name plate	Plaque electronique	Placa caracteristicas
173639R014	173639R014	4	1	Membrana	Switch Protection	Membrane	Membrana
141662R023	141662R013	5	1	Placa Electrónica	Electronic plate	Plaque electronique	Placa electronica
173765R024	173765R014	6	1	Adesivo Características	Adhesive characteristics	Etiquette Adhésive	Pegatina
4048000016	4048000016	7	1	Prensaestopas	Cable Att.	Presse-éutopes	Prensaestopas
4048125201	4048125201	8	1	Interruptor	Switch	Interrupteur	Interruptor
3912304012	3912304012	9	4	Tornillo Allen M4x12	Allen bolt M4x12	Vis Allen M4x12	Parafuso M4x12
173760R013	173760R013	10	1	Marco Interruptor	Switch frame	Encadrement	Enquadramento
3985204008	3985204008	11	2	Tornillo Philips M4x8	Philips bolt M4x12	Vis Philips M4x12	Parafuso Philips M4x12
4042105520	4042105520	12	4	Junta Tórica	O-ring	Joint torique	Junta torica
3125300006	3125300006	13	4	Arandela plana Ø6,5	Washer Ø6,5	Rondelle Ø6,5	Aarandela Ø6,5
3912306020	3912306020	14	4	Tornillo Allen M6x20	Allen Bolt M6x20	Vis Allen M6x20	Parafuso M6x20
4081004000	4081004000	15	1	Varistor	Varistor	Varistor	Varistor

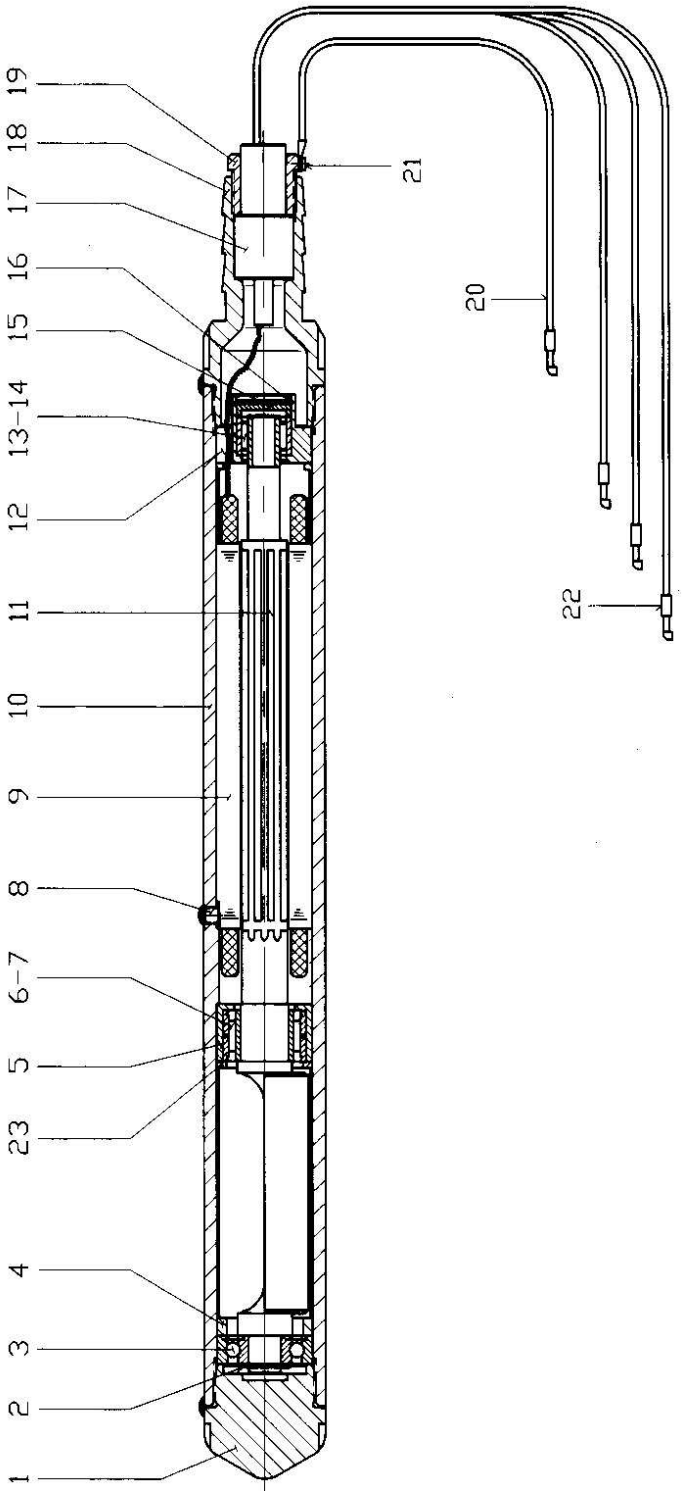
3.1 Vibrador / Vibrator / Vibrateur / Vibrador



Lista de Recambios / Spare Parts / Liste de Pièces de Rechange / Lista de Reposições

Código 115V.	Código 220V.	Pos.	Cant.	Descripción	Description	Description	Descrição
141510R023	141510R013	1	1	Aguja 38	Needle 38	Aiguille 38	Agulha 38
141509R023	141509R013	1	1	Aguja 50	Needle 50	Aiguille 50	Agulha 50
130736R014	130736R014	2	2	Casquillo	Ring	Frette	Aro
4048000344	4048000344	3	4	Terminal	Pin	Terminal	Terminal
141517R014	141517R014	4	1	Cables Eléctricos	Electric Cables	Câbles Électriques	Cabos Eléctricos
4075100019	4075100019	5	1	Tubo de Goma	Rubber Tube	Tube Caoutchouc	Tubo Borracha
141661R023	141661R013	6	1	Caja de Mandos	Control Box	Boîte à Commande	Caixa de Encomendas
.....	141619R014	7	1	Cable Conexión	Connection Cable	Câble branchement	Cabo Ligaçao
173132R013	173132R013	8	1	Manguito	Sleeve	Manchon	Manga
4000003740	4000003740	9	1	Abrazadera	Clamp	Anneau	Anel

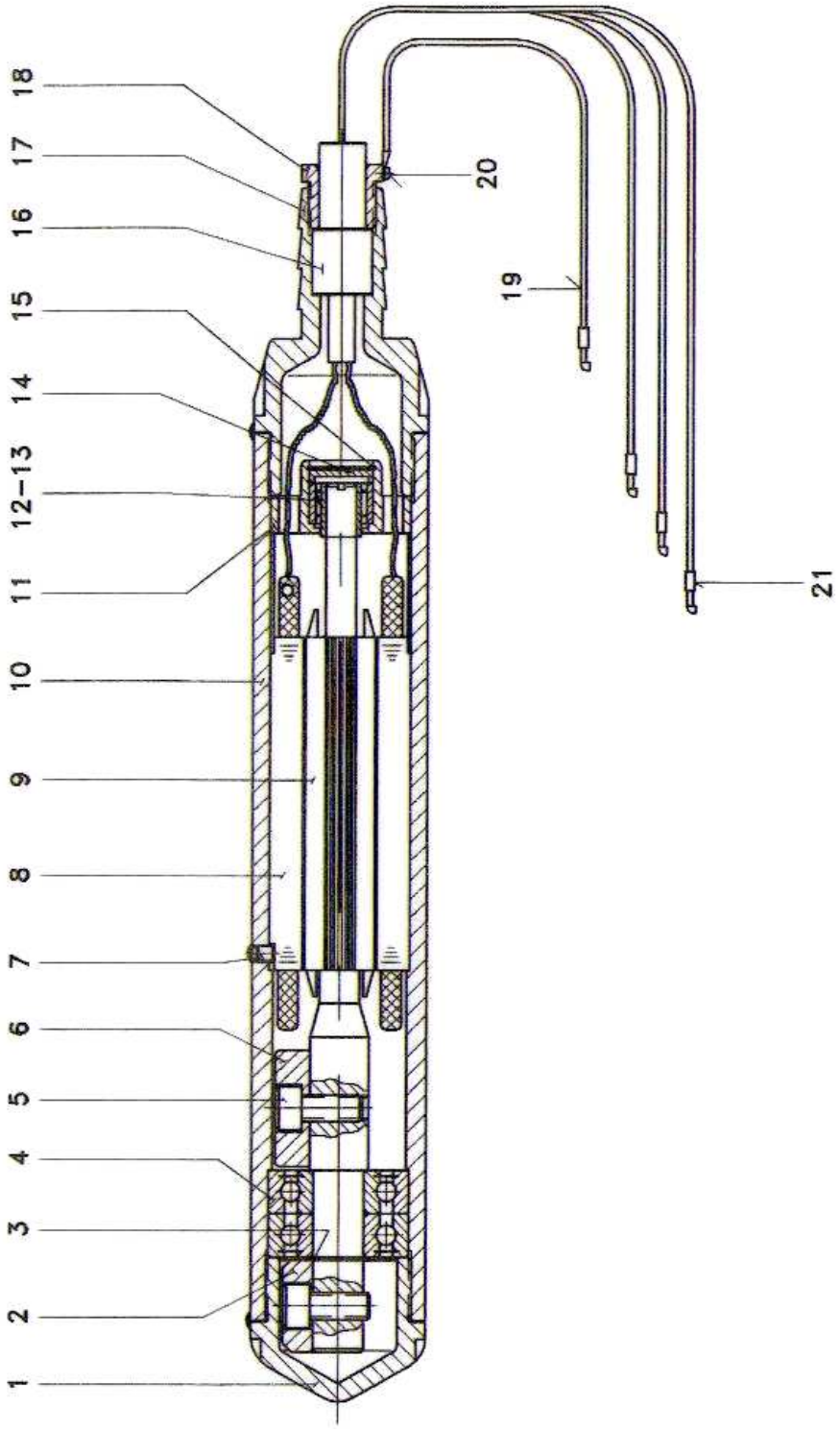
4.1 *Aguja 38 / Needle 38 / Aiguille 38* / Agulha 38



Lista de Recambios / Spare Parts / Liste de Pièces de Rechange / Lista de Reposições

Código 115V.	Código 220V.	Pos.	Cant.	Descripción	Description	Description	Descrição
173355R014	173355R014	1	1	Punta	Head	Pointe	Ponta
4005000010	4005000010	2	1	Anillo Retención	Retaining Ring	Anneau	Anel
4060620009	4060620009	3	1	Rodamiento	Bearing	Roulement	Rodamento
130714R014	130714R014	4	1	Casquillo Distancia	Distance Collar	Frette Distance	Aro distancia
130713R014	130713R014	5	1	Casquillo	Collar	Frette	Aro
4012001518	4012001518	6	1	Anillo	Ring	Anneau	Anel
4060181600	4060181600	7	1	Rodamiento	Bearing	Roulement	Rodamento
3913105005	3913105005	8	1	Pitón M-5x5	Bolt M-5x5	Tige M-5x5	Pitão M-5x5
141312R034	141312R024	9	1	Estátor	Stator	Stator	Stator
110386R013	110386R013	10	1	Carcasa	Housing	Carcasse	Carcasa
141309R013	141309R013	11	1	Rotor	Rotor	Rotor	Rotor
130719R013	130719R013	12	1	Casquillo	Bearing Support	Support Roulement	Casquilho
4012003010	4012003010	13	1	Anillo	Ring	Anneau	Anel
4060101207	4060101207	14	1	Rodamiento	Bearing	Roulement	Rodamento
4060101207	120507R014	15	1	Tapeta	Lid	Couvercle	Tampa
4006000017	4006000017	16	1	Anillo Retención	Retaining Ring	Anneau	Anel
173650R014	173650R014	17	1	Pasacables	Cable Protection	Passe-Câbles	Passo Cabos
173658R013	173658R013	18	1	Acoplamiento	Coupling	Accouplement	Acoplamento
173651R014	173651R014	19	1	Prensaestopas	Cable Attaching	Pressé-Éutopes	Prensa Estopas
141256R014	141256R014	20	1	Cable	Cable	Câble	Cabo
3985204004	3985204004	21	1	Tornillo M-4x4	Screw M-4x4	Vis M-4x4	Parafuso M-4x4
4048000346	4048000346	22	3	Terminal	Pin	Terminal	Terminal
150861R014	150861R014	23	1	Arandela Tope	Washer End	Rondelle	Arandela tope

4.2 Aguja 50 / Needle 50 / Aiguille 50 / Agulha 50



Lista de Recambios / Spare Parts / Liste de Pièces de Rechange / Lista de Reposições

Código 115V.	Código 220V.	Pos.	Cant.	Descripción	Description	Description	Descrição
173091R014	173091R014	1	1	Punta	Head	Pointe	Ponta
130685R014	130685R014	2	1	Contrapeso	Eccentric Mass	Contrepoids	Contrapeso
4005000015	4005000015	3	1	Anillo Retención	Retaining Ring	Anneau	Anel Rodamento
4060630209	4060630209	4	2	Rodamiento	Bearing	Roulement	Rodamento
3912108015	3912108015	5	2	Tornillo M-8x15	Screw M-8x15	Vis M-8x15	Parafuso M8x15
130683R014	130683R014	6	1	Contrapeso	Eccentric Mass	Contrepoids	Contrapeso
3913105005	3913105005	7	1	Pitón M-5x5	Bolt M-5x5	Tige M-5x5	Pitão M-5x5
141095R033	141095R023	8	1	Estátor	Stator	Stator	Stator
141164R013	141164R013	9	1	Rotor	Rotor	Rotor	Rotor
110373R013	110373R013	10	1	Carcasa	Housing	Carcasse	Carcasa
130684R013	130684R013	11	1	Casquillo	Bearing Support	Support Roulement	Casquilho
4012003012	4012003012	12	1	Anillo	Ring	Anneau	Anel
4060121200	4060121200	13	1	Rodamiento	Bearing	Roulement	Rodamento
120492R014	120492R014	14	1	Tapeta	Lid	Couvercle	Rodamento
4006000019	4006000019	15	1	Anillo Retención	Retaining Ring	Anneau	Anel
173650R014	173650R014	16	1	Pasacables	Cable Protection	Passe-Câbles	Passo Cabos
173649R013	173649R013	17	1	Acoplamiento	Coupling	Accouplement	Acoplamento
173651R014	173651R014	18	1	Prensaestopas	Cable Attaching	Pressé-Étoupes	Prensa Estopas
141256R014	141256R014	19	1	Cable	Cable	Câble	Cabo
3985204004	3985204004	20	1	Tornillo M-4x4	Screw M-4x4	Vis M-4x4	Parafuso M-4x4
4048000346	4048000346	21	3	Terminal	Pin	Terminal	Terminal

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